

1    1. A telephone system comprising:  
2        a base unit including:  
3            a cellular communications sub-system for providing cellular communications  
4                via a cellular service provider; and  
5            a radio communications sub-system for providing radio communications to  
6                one or more handsets; and  
7            a dial tone generator for generating an audible indication of cellular service  
8                availability;  
9        the one or more handsets including:  
10            a radio communications sub-system for providing radio communications  
11                between the one or more handsets and the base unit;  
12            a cellular communications sub-system for providing cellular communications  
13                via a cellular service provider; and  
14            a dial tone generator for generating an audible indication of cellular service  
15                availability;  
16        wherein the dial tone presented to a user of the one or more handsets is  
17            generated by the base unit dial tone generator and transmitted from the base  
18            unit to the handset over a radio communication link when the handset is  
19            communicating via the base unit and generated by the handset when the  
20            handset is communicating via its cellular communications sub-system.

1    2. The telephone system according to claim 1 wherein the base unit further comprises:  
2        a corded communications sub-system for providing communications to one or  
3            more corded handsets; and  
4        the one or more corded handset(s).  
1    3. The telephone system according to claim 2 further comprising:  
2        one or more additional base units each having:

3           a cellular communications sub-system for providing cellular communications  
4           via a cellular service provider;  
5           a radio communications sub-system for providing radio communications to  
6           the one or more handsets; and  
7           a dial tone generator for generating an audible indication of cellular service  
8           availability.

1   4. The telephone system according to claim 3 wherein the one or more handsets  
2   further comprise:

3           a communications selector for selecting which communications sub-system –  
4           radio or wireless - is to be used for communications.

1   5. The telephone system according to claim 4 wherein the communications selector is  
2   a user-operable manual switch.

1   6. The telephone system according to claim 4 wherein the communications selector is  
2   a communications link analyzer that analyzes characteristics of the radio  
3   communications sub-system and the cellular communications sub-system and  
4   determines, based upon those analysis, which communications sub-system is used  
5   for communications.

1   7. The telephone system according to claim 6 wherein the analyzed characteristics  
2   include a signal strength measurement of the respective communications signals.

1   8. The telephone system according to claim 1 wherein the cellular communications  
2   sub-system communicates according to a cellular communications format selected  
3   from the group consisting of: Code Division Multiple Access (CDMA), Wideband  
4   Code Division Multiple Access (WCDMA Wideband CDMA), Groupe Special Mobile  
5   (GSM), Time Division Multiple Access (TDMA), Advanced Mobile Phone System  
6   (AMPS), Personal Digital Cellular (PDC), Personal Handy-Phone System (PHS),  
7   Orthogonal Frequency Division Multiple Access (OFDMA).

- 1 9. The telephone system according to claim 1 wherein the radio communications sub-  
2 system communicates according to a radio communications format selected from  
3 the group consisting of: analog 46/49MHz FM modulation; digital spread spectrum  
4 900MHz; digital spread spectrum 2.4GHz; digital spread spectrum 5.8GHz; 802.11  
5 and BLUETOOTH.
  
- 1 10. The telephone system according to claim 1 wherein the base unit radio  
2 communications sub-system provides full-duplex communication.
  
- 1 11. The telephone system according to claim 1 wherein the base unit cellular  
2 communications sub-system provides full-duplex communication.
  
- 1 12. The telephone system according to claim 1 wherein the handset radio  
2 communications sub-system provides full-duplex communication.
  
- 1 13. The telephone system according to claim 1 wherein the handset cellular  
2 communications sub-system provides full-duplex communication.
  
- 1 14. The telephone system according to claim 1 wherein radio sub-system of the base  
2 unit and the radio sub-system of a handset communicate via full-duplex  
3 communication simultaneously with the base unit being in full duplex communication  
4 with a base station using the cellular communications sub-system.
  
- 1 15. A telephone system comprising:  
2 a base unit including:  
3 a means for providing cellular communications via a cellular service provider;  
4 a means for providing radio communications to one or more handsets; and  
5 a means for generating a dial tone as an indication of cellular service  
6 availability;  
7 the one or more handsets including:

8 a means for providing radio communications between the one or more  
9 handsets and the base unit;  
10 a means for providing cellular communications via a cellular service provider;  
11 and  
12 a means for generating a dial tone as an indication of cellular service  
13 availability;  
14 wherein the dial tone presented to a user of the one or more handsets is  
15 generated by the base unit dial tone generating means and transmitted  
16 from the base unit to the handset over a radio communication link when  
17 the handset is communicating via the base unit and generated by the  
18 handset dial tone generating means when the handset is communicating  
19 via its cellular communications means.

1 16. The telephone system according to claim 15 wherein the base unit further  
2 comprises:

3 a means for providing communications to one or more corded handsets; and  
4 the one or more corded handset(s);  
5 wherein the dial tone presented to a user of the one or more corded handsets is  
6 generated by the base unit dial tone generating means.

1 17. The telephone system according to claim 16 further comprising:

2 one or more additional base units each having:  
3 a means for providing cellular communications via a cellular service provider;  
4 a means for providing radio communications to the one or more handsets;  
5 and  
6 a means for generating dial tone as an indication of cellular service  
7 availability.

1 18. The telephone system according to claim 15 wherein the one or more handsets  
2 further comprise:

3           a means for selecting which communications sub-system – radio or wireless - is  
4           to be used for communications.

1   19. The telephone system according to claim 18 wherein the means for selecting the  
2       communications sub-system includes a user-operable manual switch.

1   20. The telephone system according to claim 18 wherein the means for selecting the  
2       communications sub-system includes:

3           a means for analyzing characteristics of the radio communications sub-system  
4           and the cellular communications sub-system; and

5           a means for determining, based upon the analysis, which communications sub-  
6       system is used for communications.

1   21. The telephone system according to claim 20 wherein the analyzing means includes  
2       a means for measuring the signal strength of the respective communications signals.

1   22. The telephone system according to claim 15 wherein the cellular communications  
2       means communicates according to a cellular communications format selected from  
3       the group consisting of: Code Division Multiple Access (CDMA), Wideband Code  
4       Division Multiple Access (WCDMA Wideband CDMA), Groupe Special Mobile  
5       (GSM), Time Division Multiple Access (TDMA), Advanced Mobile Phone System  
6       (AMPS), Personal Digital Cellular (PDC), Personal Handy-Phone System (PHS),  
7       Orthogonal Frequency Division Multiple Access (OFDMA).

1   23. The telephone system according to claim 15 wherein the radio communications  
2       means communicates according to a radio communications format selected from the  
3       group consisting of: analog 46/49MHz FM modulation; digital spread spectrum  
4       900MHz; digital spread spectrum 2.4GHz; digital spread spectrum 5.8GHz; 802.11  
5       and BLUETOOTH.

1   24. The telephone system according to claim 15 wherein the one or more handsets  
2       includes:

3        a means for automatically completing telephone numbers being entered by a  
4        user such that the user does not have to enter all of the digits comprising the  
5        telephone number .

1    25. The telephone system according to claim 24 wherein the one or more handsets  
2        includes:

3        a means for learning the telephone numbers which are to be automatically  
4        completed.

1    26. The telephone system according to claim 25 wherein the one or more handsets  
2        includes:

3        a means for remembering the telephone numbers which are to be automatically  
4        completed.

1    27. The telephone system according to claim 26 wherein the one or more handsets  
2        includes:

3        a means for presenting to a user the remembered telephone numbers which are  
4        to be automatically completed, such that they are presented in most-often-  
5        called order.

1    28. The telephone system according to claim 27 wherein the one or more handsets  
2        includes:

3        a means for selecting the ordered telephone numbers for subsequent dialing.

1    29. The telephone system according to claim 17 further comprising:

2        a means for providing full-duplex cellular communications.

1    30. The telephone system according to claim 29 further comprising:

2        a means for providing full-duplex radio communications.

1 31. The telephone system according to claim 30 wherein the means for providing full-  
2 duplex cellular communications and the means for providing full-duplex cordless  
3 communications operate simultaneously.

1 32. A method of making a telephone call comprising the steps of:  
2 establishing, a radio communications link between a radio handset and a base  
3 unit, the base unit including:  
4 a cellular communications sub-system;  
5 a radio communication sub-system; and  
6 instructing, via the radio communications link, the base unit to initiate a cellular  
7 telephone call.

1 33. The method of claim 32 further comprising the steps of:  
2 providing, via the radio communications link, a dial tone indicative of cellular  
3 service availability to a user of the radio handset.

1 34. The method of claim 32 further comprising the steps of:  
2 establishing, a cellular telephone call between the base unit and a cellular  
3 service provider.

1 35. The method of claim 34 further comprising the steps of:  
2 conducting, the established cellular telephone call.

1 36. The method of claim 35 wherein the radio communications link utilizes a radio  
2 communications format selected from the group consisting of: analog 46/49Mhz FM  
3 modulation; digital spread spectrum 900MHz; digital spread spectrum 2.4GHz;  
4 digital spread spectrum 5.8GHz; 802.11 and BLUETOOTH.

1 37. The method of claim 32 wherein the cellular communications sub-system  
2 communicates according to a cellular communications format selected from the

3 group consisting of: Code Division Multiple Access (CDMA), Wideband Code  
4 Division Multiple Access (WCDMA Wideband CDMA), Groupe Special Mobile  
5 (GSM), Time Division Multiple Access (TDMA), Advanced Mobile Phone System  
6 (AMPS), Personal Digital Cellular (PDC), Personal Handy-Phone System (PHS),  
7 Orthogonal Frequency Division Multiple Access (OFDMA).

1 38. The method of claim 32 wherein the radio communications link is a full-duplex  
2 communications link.

1 39. A cellular telephone comprising:

2 control circuitry;  
3 a cellular transceiver, connected to the control circuitry for transmitting and  
4 receiving cellular telephone signals to/from a cellular base station;  
5 a radio transceiver, connected to the control circuitry for transmitting and  
6 receiving radio telephone signals to/from a radio base unit; and  
7 selection circuitry for selecting which transceiver, cellular or radio is used for  
8 telephonic communication.

1 40. The telephone according to claim 39 further comprising:

2 a signal evaluator, connected to the selection circuitry, for evaluating the radio  
3 telephone signals received from the radio base unit;  
4 such that if the radio telephone signals received from the radio base unit fall  
5 below a pre-defined threshold, the selection circuitry automatically selects  
6 cellular operation.

1 41. The telephone according to claim 39 further comprising:

2 a microphone connected to the control circuitry for providing voice signals to the  
3 control circuitry;  
4 a speaker connected to the control circuitry for receiving voice signals from the  
5 control circuitry.

- 1 42. The telephone according to claim 39 further comprising:
  - 2 a manually-operated switch connected to the selection circuitry;
  - 3 such that when the manually-operated switch is in a "cellular" position the
  - 4 telephone only operates in a cellular manner and when the manually-
  - 5 operated switch is in a "radio" position the telephone only operates in a radio
  - 6 manner.
- 1 43. The telephone according to claim 39 further comprising:
  - 2 a keypad, connected to the control circuitry, for permitting a user to input a
  - 3 telephone number.
- 1 44. The telephone according to claim 39 further comprising:
  - 2 dial tone generating circuitry, connected to the control circuitry, for providing an
  - 3 audible indication that cellular service is available.
- 1 45. The telephone according to claim 43 further comprising:
  - 2 telephone number generating circuitry, connected to the control circuitry, for
  - 3 automatically completing the input of a telephone number without requiring
  - 4 the user to input the entire number.
- 1 46. The telephone according to claim 43 further comprising:
  - 2 area code number generating circuitry, connected to the control circuitry, for
  - 3 automatically generating an area code number of a dialed telephone number,
  - 4 without requiring the user to input the entire area code number.
- 1 47. The telephone according to claim 46 wherein the area code generating number
- 2 circuitry automatically generates an area code number of a dialed number without
- 3 requiring the user to input the entire area code number when the area code of the
- 4 dialed number is the same as the area code of a telephone number associated with
- 5 the telephone.

1 48. The telephone according to claim 46 wherein the area code generating number  
2       circuitry automatically generates an area code number of a dialed number without  
3       requiring the user to input the entire area code number when the area code of the  
4       dialed number is the same as the area code of a telephone number previously called  
5       and stored in the telephone memory.

1 49. The telephone according to claim 41 wherein the cellular transceiver communicates  
2       according to a cellular communications format selected from the group consisting of:  
3       Code Division Multiple Access (CDMA), Wideband Code Division Multiple Access  
4       (WCDMA Wideband CDMA), Groupe Special Mobile (GSM), Time Division Multiple  
5       Access (TDMA), Advanced Mobile Phone System (AMPS), Personal Digital Cellular  
6       (PDC), Personal Handy-Phone System (PHS), Orthogonal Frequency Division  
7       Multiple Access (OFDMA).

1 50. The telephone according to claim 41 wherein the radio transceiver communicates  
2       according to a radio communications format selected from the group consisting of:  
3       analog 46/49MHz FM modulation; digital spread spectrum 900MHz; digital spread  
4       spectrum 2.4GHz; digital spread spectrum 5.8GHz; 8002.11 and BLUETOOTH.

1 51. The telephone according to claim 41 further comprising a telephone number  
2       assignment circuit, connected to the control circuit, for dynamically assigning a  
3       cellular telephone number to the telephone wherein the cellular telephone number is  
4       shared among one or more other telephones.

1 52. A telephone system comprising:  
2       a telephone unit including:  
3           a means for providing telephonic communications via a telephone service  
4           provider;  
5           a means for providing radio communications to one or more remote alerting  
6           devices; and  
7       the one or more remote alerting devices including:

8           a means for providing radio communications between the remote alerting  
9           device and the base unit; and  
10          a means for notifying a user of an incoming call;  
11          such that when an incoming call is received by the telephone unit, it signals  
12           the remote alerting device(s) via the radio communications means to notify  
13           the user who is thereafter notified.

1       53. The telephone system according to claim 52 wherein the user notifying means is an  
2       audible notifying means.

1       54. The telephone system according to claim 53 wherein the user notifying means is a  
2       visual notifying means.

1       55. The telephone system according to claim 52 wherein the user notifying means is a  
2       mechanical notifying means.

1       56. A telephone system comprising:  
2           a telephone unit including:  
3            a means for providing telephonic communications via a telephone service  
4            provider;  
5           a means for providing radio communications to one or more remote devices;  
6           a means for determining a predetermined event which results from monitoring  
7            the radio communications means; and  
8           a means for notifying a user of the predetermined event  
9           the one or more remote devices including:  
10           a means for providing radio communications between the remote alerting  
11           device and the base unit;  
12          such that when the predetermined event is determined by the telephone unit, it  
13           notifies the user of the event.

- 1 57. The telephone system according to claim 57 wherein the predetermined event is
- 2       indicated when one of the remote devices exceeds a certain distance from the
- 3       telephone unit.
  
- 1 58. The telephone system according to claim 57 wherein the predetermined event is
- 2       indicated when the radio communications link signal strength between one of the
- 3       remote devices and the telephone unit falls below a threshold.
  
- 1 59. The telephone system according to claim 56 wherein the user notifying means is an
- 2       audible notifying means.
  
- 1 60. The telephone system according to claim 56 wherein the user notifying means is a
- 2       visual notifying means.
  
- 1 61. The telephone system according to claim 56 wherein the user notifying means is a
- 2       mechanical notifying means.
  
- 1 62. A cellular telephone comprising:
  - 2       control circuitry;
  - 3       a cellular transceiver, connected to the control circuitry for transmitting and
  - 4            receiving cellular telephone signals to/from a cellular base station;
  - 5       a microphone connected to the control circuitry for providing voice signals to the
  - 6            control circuitry;
  - 7       a speaker connected to the control circuitry for receiving audio signals from the
  - 8            control circuitry;
  - 9       a keypad, connected to the control circuitry for permitting a user to input a
  - 10           telephone number; and
  - 11       a number collector/evaluator, for collecting successive numbers entered by the
  - 12           user via the keypad, and evaluating the number(s) when entered by the user
  - 13           such that the cellular phone automatically transmits the evaluated number -

14                   when a pre-determined criteria is met – to a cellular telephone network  
15                   without requiring the user to explicitly initiate the transmission.

1       63. The telephone system according to claim 62 wherein the pre-determined criteria is  
2                   met when the user enters a complete telephone number.

1       64. The telephone system according to claim 62 wherein the pre-determined criteria is  
2                   met when a pre-determined period of time elapses.

1       65. The telephone system according to claim 62 further comprising a dial tone  
2                   generator, which provides an audio indication to the user of cellular service  
3                   availability.

1       66. The telephone system according to claim 62 further comprising an error generator,  
2                   which provides an audio indication to the user of an error condition associated with  
3                   the number being entered/evaluated.

1       67. In a telephone system comprising:

2                   a base unit including:

3                   a cellular communications sub-system for providing cellular communications  
4                   via a cellular service provider;

5                   a radio communications sub-system for providing radio communications to  
6                   one or more handsets; and

7                   a base unit cellular sub-system disabler;

8                   a handset including:

9                   a radio communications sub-system for providing radio communications  
10                   between the one or more handsets and the base unit; and

11                   a cellular communications sub-system for providing cellular communications  
12                   via a cellular service provider; and

13                   a handset cellular number disabler;

14 wherein the base unit has associated with it a particular cellular telephone  
15 number and the handset has associated with it the same cellular telephone  
16 number;  
17 wherein if the handset determines that it is within satisfactory radio  
18 communications range of the base unit, it disables its cellular sub-system;  
19 and  
20 wherein if the base unit determines that the handset is not within satisfactory  
21 radio communications range of the base unit, it disables its cellular sub-  
22 system;  
23 such that if the handset is within satisfactory radio communications range of the  
24 base unit, and the telephone number associated with the base unit is dialed,  
25 the base unit receives the call and may optionally ring through the handset via  
26 the radio communications sub-system, and if the handset is not within  
27 satisfactory radio communications range of the base unit, the base unit  
28 disables its cellular sub-system so that when the telephone number  
29 associated with the base unit is dialed, only the handset receives the call.

1 68. A method of operating a telephone system, the telephone system comprising:  
2 a base unit including:  
3 a cellular communications sub-system for providing cellular communications  
4 via a cellular service provider;  
5 a radio communications sub-system for providing radio communications to  
6 one or more handsets;  
7 a call forwarding system;  
8 wherein the base unit has associated with it a unique cellular telephone  
9 number;  
10 one or more handsets including:  
11 a radio communications sub-system for providing radio communications  
12 between the one or more handsets and the base unit; and  
13 a cellular communications sub-system for providing cellular communications  
14 via a cellular service provider;

15           wherein each of the handsets have associated with it a unique cellular  
16           telephone number;  
17           the method of operating the telephone system comprising the steps of:  
18           determining, according to a pre-determined criteria, whether to forward calls  
19           directed to the base station to one of the handsets; and  
20           automatically forwarding, when the pre-determined criteria is met, calls directed  
21           to the base station to one of the handsets.

1       69. The method according to claim 68 further comprising the steps of: polling, of the  
2       handsets by the base system to determine whether the pre-determined criteria is  
3       met.

1       70. A method of operating a telephone system, the telephone system comprising:  
2           a base unit including:  
3            a cellular communications sub-system for providing cellular communications  
4            via a cellular service provider;  
5            a radio communications sub-system for providing radio communications to  
6            one or more handsets;  
7            wherein the base unit has associated with it a unique cellular telephone  
8            number;  
9           one or more handsets including:  
10            a radio communications sub-system for providing radio communications  
11            between the one or more handsets and the base unit; and  
12            a cellular communications sub-system for providing cellular communications  
13            via a cellular service provider;  
14            wherein each of the handsets have associated with it a unique cellular  
15            telephone number;  
16           the method of operating the telephone system comprising the steps of:  
17           receiving, at the base set an incoming telephone call directed to its unique  
18            cellular telephone number; and

19            notifying each of the handsets, according to a pre-determined criteria, of the  
20            presence of the incoming call such that users of the handset(s) may accept  
21            the call.

1    71. The method according to claim 70 further comprising the steps of: conducting, the  
2    accepted cellular telephone over the radio link between the handset accepting the  
3    call and the base set.